Descriptions of the Malayan species of Laportea

by

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THERE ARE two species of the stinging trees belonging to the genus *Laportea* (Urticaceae) known in Malaya, but the descriptions in Ridleys Flora (1924) are very scanty. Thus, because I have become familiar with both species in the field, it may be of interest to give descriptions of the living plants.

The more familiar species is *L. stimulans* Miq., and it has been stated to be not uncommon in Malaya, but it is undoubtedly absent from wide areas. The second species *L. pustulosa* Ridl., is extremely rare, and until I found some in 1959, it was known perhaps only from Father Scortechini's original collection from somewhere in Perak. Dr. Chew Wee-Lek, who has been studying this genus, now believes that *L. pustulosa* is conspecific with a species that is widespread in Malaysia and India, and will soon be publishing his conclusions, thus nomenclature will not be discussed here.*

LAPORTEA STIMULANS Miq. Malay name: *Jĕlatang.*

Adult tree (when woody), from about 4–8 m. tall, more rarely to 11.5 m. Flowering trees from limestone habitat, commonly 4–5 m. in height, even in shape and sparsely leafy. Trees in jungle habitat (granite), untidy, and largest trees, apparently old, between about 10–11.5 m. in height, nearly always fallen (shallow rooted ?) with the trunk lying at an angle. The trunk may be 30 cm. in diameter, and shoots grow erect from this, later becoming woody and branching, up to 7 m. tall and often flowering. This seems characteristic, and thus the older the tree the more untidy it becomes, and this stage is frequently seen in the jungle.

Bark is smooth, pale and greyish-mottled. Both young and old are marked with very narrow vertical lenticels. *Branches* (of mature trees) are leafy only at the twig ends, and these are always erect for the last 12 cm., the rest being more or less horizontal. Branchlets and twigs are short and the new growth is green and fleshy looking, but becomes pale and woody with maturity, and scarred from fallen leaf-stalks. Wood is brittle: twigs are usually glabrous, but occasionally have a few stinging hairs on very new growth (Rotan Segar specimens).

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* Description of the stinging powers, and some observations of the two *Laportea* species are being published in the Malayan Nature Journal.

Leaves in whorls are crowded together at the twig ends, on the erect part. On adult trees, the petioles are about 1.5 cm., apart, or about 3 cm. apart on the same side. Leaves on young plants are usually, but not always, larger than on the mature tree, and again are usually larger on plants growing in granite areas than in limestone. On young plants of one stem (about 130 cm. tall and not woody), the largest leaves measured 38.75 × 13.75 cm. with a petiole length of 6.5 cm., and 36 × 12.25 cm. and petiole of 13 cm. On a new shoot growing from a previously cut tree, many of the leaves measured 51 × 17 cm., but this was not usual. Adult leaves are usually uniform in size on a tree, but again are nearly always larger in granite areas. They are commonly between 15–20 cm. × 5–7 cm., but some (from Gopeng) measured nearly 30 cm. long. Leaves may be green but are more usually flushed with pinkish or purple, especially below on the midrib and main veins. Otherwise they are medium-green above and rather dull, not smooth but with flat, pale scales (?) scattered over the laminae and on the midrib. The under-surface is paler. The texture is thin but looks fleshy. The lamina tapers gradually from base to apex, being widest about the middle; the tip may be short or slightly drawn out, narrow but blunt. The base is narrow, slightly decurrent on the leaf-stalk, sometimes unevenly so. Margins are thickened somewhat, are undulating and sharply crenated rather than toothed. Leaf hairiness is variable, but they are glabrous above, only occasionally are there stinging hairs scattered on laminae. Below, the hairs are usually confined to the veins and underside of the petiole. There are about 10–15, rarely 17, uneven pairs of main veins, these being about 4 mm. apart, and there are often two extra veins on one side. On the upper surface of the leaf these veins are sunk, and are about the same colour as the lamina. Below, they are strongly raised, and together with the midrib are often flushed with pink or purplish, but if green are then lighter than the lamina. There are many smaller and dark interlacing veinlets between the main veins; these often bear scattered hairs which are about 0.5 mm. long, and are very slender, and not appressed, but more or less orientated towards the margin.

The *petiole* is curved so that the leaf faces the sun, but droops rather rapidly if the day is hot and dry. On young plants it is usually between 4–8 cm. long, but occasionally to 13 cm.; on adult plants it may be between 2.75–6 cm. long. On the underside, the stinging hairs are usually fine and about 0.25 mm. long, occasionally stout and then stinging fiercely (Rotan Segar specimens), and very occasionally with no hairs at all (Gopeng). Petioles are green or flushed with pink, are rounded below and channelled above, bearing a few hairs on the edges of the channelling.

The *hairs* present on leaves, petioles and infloresences are stinging hairs. They may vary in size, but all are whitish, translucent and filled with sap, and each has a silica cap.

Trees commence to flower only after they become woody. *Male flowers* are scattered on an open panicle, which is axillary; one arising from the base of a leaf-stalk on the upper side. Panicles, about 10–19 cm. long, are jointed to the twigs and are branched twice or occasionally three times, and are slightly zigzag. They are at first horizontal, then slightly pendulous but are firm yet fleshy in texture, are bright green at first maturing to lilac-pink which is paler at the apex. The panicle is about 3 mm. through at the base tapering upwards; and stinging hairs of two sizes are scattered throughout. There are several flowers together, in tight, almost sessile bunches. There are four pale green pointed sepals enclosing the stamens in bud; they are pubescent and more or less persistent. Stamens, 4–8 with filaments are tightly coiled, and when the flowers reach maturity uncoil with an explosive mechanism in the sun, and then remain in a loose coil showing that the filaments are flat. Anthers are bright green, when immature, then whitish-cream, and the pollen which is the same colour, is ejected into the air for about 15 cm. when the filaments uncoil.

Female flowers: at first the infloresence is about the same length as the male (10–19 cm.) and partly drooping, but elongates after the flowers are fertilised, to almost three times its original length. It then becomes pendulous and, hanging down thus from the erect twig ends, becomes conspicuous. The panicle is green when young but matures to a lilac-pink, and eventually to a vivid cerise-pink when in fruit. When young, the panicle is round, and very slender (about 1.5 mm. through at the thickest part), but thickness with maturity, and may be to about 16 cm. long, to the first branching. Here there are usually 2–3 stalklets from one point, below which is a tiny brownish, persistent convex stipule. Stalklets are from 4–20 mm. long; when short, bearing two receptacles at its apex, or (more commonly) when longer, branched again and culminating in 11–12 receptacles which are often paired on very short (not swollen) pink stalks. In fruit, one of the pair may be mature whilst the other is still very immature. All over the infloresence are short hairs, which are slender but which sting fiercely. The receptacle is fan-shaped, about 2 mm. wide at the widest part, and is pubescent. There are commonly 3–7 flowers on a receptacle, each having 4 green sepals (as in the male flowers), one bright green ovary which is sessile, more or less round and about 0.5 mm. wide; it is capped with a slender white style which glistens although it is pubescent. Flowers are scentless.

The *fruit* is comparatively conspicuous, for the receptacle becomes fleshy and shiny, swelling to about 10 mm., across; it is then of a pale lilac colour, except where the seeds are attached which is bright green. The seeds are dark green in colour and hard.

Fruits ripen gradually, thus few being ripe on a panicle at one time. The fleshy receptacles are quickly eaten by birds at this stage, and in Gopeng sunbirds were seen at the trees, the Purple-naped Sunbird (*Anthrepetes m. macularia*) being the commonest. In the Tapah Hills forest reserve, there were many different kinds of birds eating the fruits, the commonest being The Black-crested Yellow Bulbul (*Pycnonotus dispar caecili*), The Crested Bulbul (*Criniger ochraceus sacculatus*) and the Yellow-throated Flowerpecker (*Anaimos m. maculatus*).* No birds were noted on the limestone plants, but no fruits were found around the bases of the trees.

Male trees appear to flower from about a week to a month ahead of the female. They have been noted in early January, whilst the female trees in the same area were not out until early February (1963). Fruits have been seen from early March to the middle of April. One year which had an unusually long dry season, male flowers (Gopeng) were found in August, September and December, on the same tree. None of the female trees examined at the same time had flowers, nor were any seen on the limestone trees. Apparently trees may not flower every year, for during a very wet January and February, no flowers appeared on Bujang Melaka plants, and although these were watched at intervals during subsequent months, nothing was seen until the following January.

The following are the localities in Perak where I have seen this species. The collecting numbers are mine and the material has been sent to: Royal Botanic Kew; Singapore Herbarium and Sarawak Forest Dept.

Limestone areas in the Kinta Valley: Gunong Ampang; G. Ayer Hangat (4718); G. Idong; G. Lanno; G. Kanthan; G. Merawan (4880); G. Rapat; Rotan Segar (4878). Non-limestone areas: Bukit Gantang Pass; Kledang Range; hills behind Gopeng (4728, 4877); Bujang Melaka Mt., both sides (4888); hills near Chenderiang; Tapah Hills Forest Reserve (off Cameron Highlands Rd.), the latter at 270 m. altitude.

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* Identified by F.G.H. Allen.

LAPORTEA PUSTULOSA Ridl. Malay name: *Pulutus.*

Adult trees rather open, 3–11 metres high (when flowering). Unless otherwise stated the description is from the largest (11 m.) tree.

Trunk straight, and at 11 cm. from the ground, circumference 53 cm. At about 150 cm. (and just below the first branch) 38 cm. circumference. *Bark* pale, mid-brown and blotched with pale concentric markings (lichens ?), and smooth except for small pimples and a slight ridging running horizontally round the trunk at intervals of about 8–15 cm., the ridge running round all or part of the trunk. The first branch was about 25 cm. circumference at its base, and was flowering; there were no more branches for about another 200 cm. where the main ones started. New twigs, hollow, or filled with a white pith; green and fleshy-looking, with numerous very small white and vertical lenticels on the bark; the twigs becoming ridged with leaf-scars as they mature.

Leaves are bunched together on the green twig ends, for about the last 40 cm. They are loosely whorled, each petiole being about 1 cm. apart, (occuring every 3–4 cm. on the same side). Leaves on young plants, which are usually unbranched, are not always larger than on the adult trees. On the latter they vary in size, 18–44 cm. long by 10–23 cm. wide, but are commonly between 23 × 12 and 27 × 13 cm. Shape of the lamina is constant and texture is thickish and soft. Above, it is smooth, somewhat shiny and rather dark green, but new leaves are very thin and pale green. The underside of the leaf is dull and pale green. There is never any pinkish colour on the lamina or petiole. Leaves are hairless above but are slightly pubescent on the midrib below; the leaf-base is heart-shaped (never tapered), and the short lobes reach over the petiole. The apex is more or less abruptly narrowed and tapered for about 1.5 cm., with a blunt tip. Leaves are obovate and the margins coarsely and unevenly toothed with short teeth; the margin is pale, slightly thickened and narrowly reflexed. The midrib is stout, paler than the lamina and is ridged above for about $\frac{3}{4}$ of its length, and then sunk. Below it is strongly raised (to 5 mm.) at the base, is rounded and covered with stinging hairs which are closely appressed and orientated towards the petiole. The main veins are also stout, about 10, rarely 13 or 14, uneven pairs, which join, or nearly join at about 5 mm. from the leaf margin. They are paler than the lamina, are sunk above but strongly raised below; between these, are several lesser pairs reaching only a short distance from the midrib, these join very small netted veinlets which are also raised below, but are darker than the lamina. There are usually a few (occasionally more) stinging hairs on the main veins; these face the midrib. *Petioles* are jointed to the twigs and are slightly swollen near the join; they are semi-drooping and lighter green than the lamina; are fleshy-looking and narrowly channelled from the apex downwards for about 1.5 cm., otherwise are round. Length varies from about 11–18 cm., or averaging about 13.5 cm., and at the middle of the petiole are 5 mm. through. They are heavily covered on the underside *only* with almost appressed hairs which are comparatively stout and very short (about 0.5 mm. long), but above are glabrous.

The *hairs* present on the lamina, petiole and infloresence are transparent, glistening and are hollow and filled with sap. They all sting fiercely especially those on the petiole and infloresence, causing great pain.

Male flowers seen only when very old and fallen. Apparently on a short axillary panicle (about 10 cm. long), green.

Female flowers on an axillary panicle, one from the upper side of a petiole base, and usually the same number as leaves on a twig end; the oldest being from the lowest leaves. Panicles are erect, not lax, but droop extremely rapidly after being picked. Length varies with leaf length, the longer the leaf the longer the panicle. They are from about 9–18 cm. long and are covered with pale hairs which sting fiercely; these are spreading, not appressed, and panicles vary in their degree of hairiness. On a 12 cm. panicle, the first branch is at about 5 cm. from the base, and from this point there may be up to 5 stalklets. Near the branching the panicle is twisted; it is all green in colour (never pink), and the stalklets are sprinkled with very short (0.5 mm.) hairs. Flowers are 1–6 rarely 7, in a bunch, each being quite separate, sessile, or with a very short stalk which develops as the flower matures. There are 4 green pubescent *sepals* which cover the ovary for about three quarters of its length; they are minutely fringed. Each *ovary* is about 0.5–2 mm. wide, rather round, is green and capped with one curved and comparatively thick style which is about 3–5 mm. long and is white and glistening with translucent dots. On the ultimate stalklets and at the base of a bunch of ovaries, are a few small hairs, most of which are erect. Panicles lengthen with maturity, and in fruit commonly about 20 cm. long.

Fruits are fleshy drupes, but are smooth and flattened when immature, and each is green with a pale edge, and a short curved beak. The fruit-stalk is now about 2 mm. long. Only a few fruits ripen at one time on a panicle; when mature they are fleshy and white with a watery flesh which shows the green seed through it. Each fruit is about 7–10 mm. long by 5–7 mm. across, is slightly flattened and the persistent sepals and curved beak are now sunk in the flesh but are still evident. *Seeds*, one to each fruit, are comparatively large, to about 5 mm. wide, but thin; they are green and minutely pitted. Female trees flowered from early to mid-February; the male had then finished. Fruits ripened in March.

The white fruits fall and lie around the tree base; they do not seem to be eaten by birds as in the previous species, nor were any birds seen at the tree. This may account for its extremely limited distribution within an area.

I have found this species at Gunong Idong (S.E. end of the G. Rapat limestone outcrop) in Perak. (4667, 4879, 4887). In an amphitheatre inside the outcrop; in red earth but completely surrounded by limestone cliffs (35–270 m. tall); in shaded places. I have not found this elsewhere, with the possible exception of a very small plant about 20 cm. high, growing in shade at the base of G. Kanthan, a limestone hill north of Ipoh, which may have been this species (4846).

At Gunong Idong, there were two adult female trees and two male, but there were many young plants growing below the female trees; and at another place, about 100 m. distance, (on the opposite side) there were more immature plants, suggesting another mature female, perhaps above on the cliff, although this was not found. Also there were many plants near the former female trees which had been woody but had been cut back some time previously (at least four years) to within about 30 cm. from the ground. These now (1963) have tall shoots, not yet woody, and not flowering so far.

Plant associates: The floor of the amphitheatre is damp and partly shaded by the tall cliffs and by very old, tall trees of *Hevea brasiliensis*. Where it is slightly open, *Selaginella willdenowii* and *Stenotaphrum helferi* cover the ground, and 'pulutus' is common amongst them. Scattered through this are *Athyrium esculentum*, very large *Amorphophallus campanulatus*, and two gingers, *Achasma* sp. and *Costus* sp. *Lygodium circinnatum* and *L. salicifolium* climb over the shrubs and over a small *Pandanus* sp. (possibly *P. ornatus*). Here also *Cyclosorus truncatus* and *Nephrolepis biserrata* are common together with a few young plants of *Laportea stimulans*. Other plants include *Dracaena* sp. a small species, *Fleuria interrupta, Debregeasia squamata, Certandra pendulosa, Helminthostachys zeylanica* and *Microlepia speluncae* var. *villosissima*. In the darker places where pulutus is most common, near the cliff base (and under tall palms, *Iguanura* sp. and occasional *Taxatrophis ilicifolia*) is a stand of *Justicia* sp. This is where the tall female tree grows and the plants noted include *Heterogonium pinnatum* and *Bolbitis heteroclita* amongst which is a small creeping herb (Acanthaceae) with cream-coloured flowers, and *Monophyllaea horsfieldii*, which were growing in earth amongst the rocks, and on the rock itself were *Pothos macrocephalus*, a *Hoya* sp., two climbing *Piper* spp., *Begonia kingiana, Tectaria amplifolia, Pteridys syrmatica* and *Typhonium fultum*, the latter two being in earth pockets.

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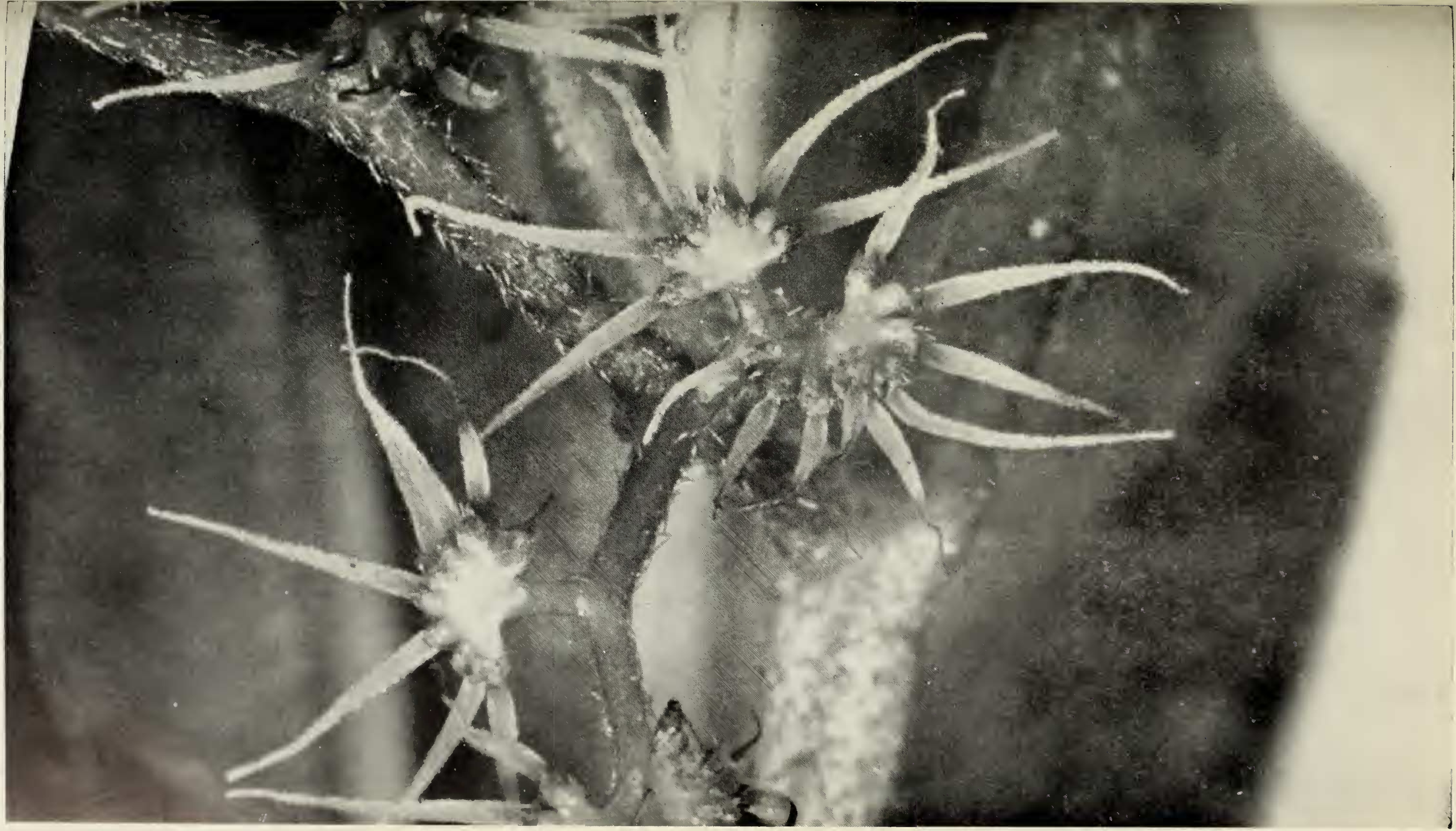
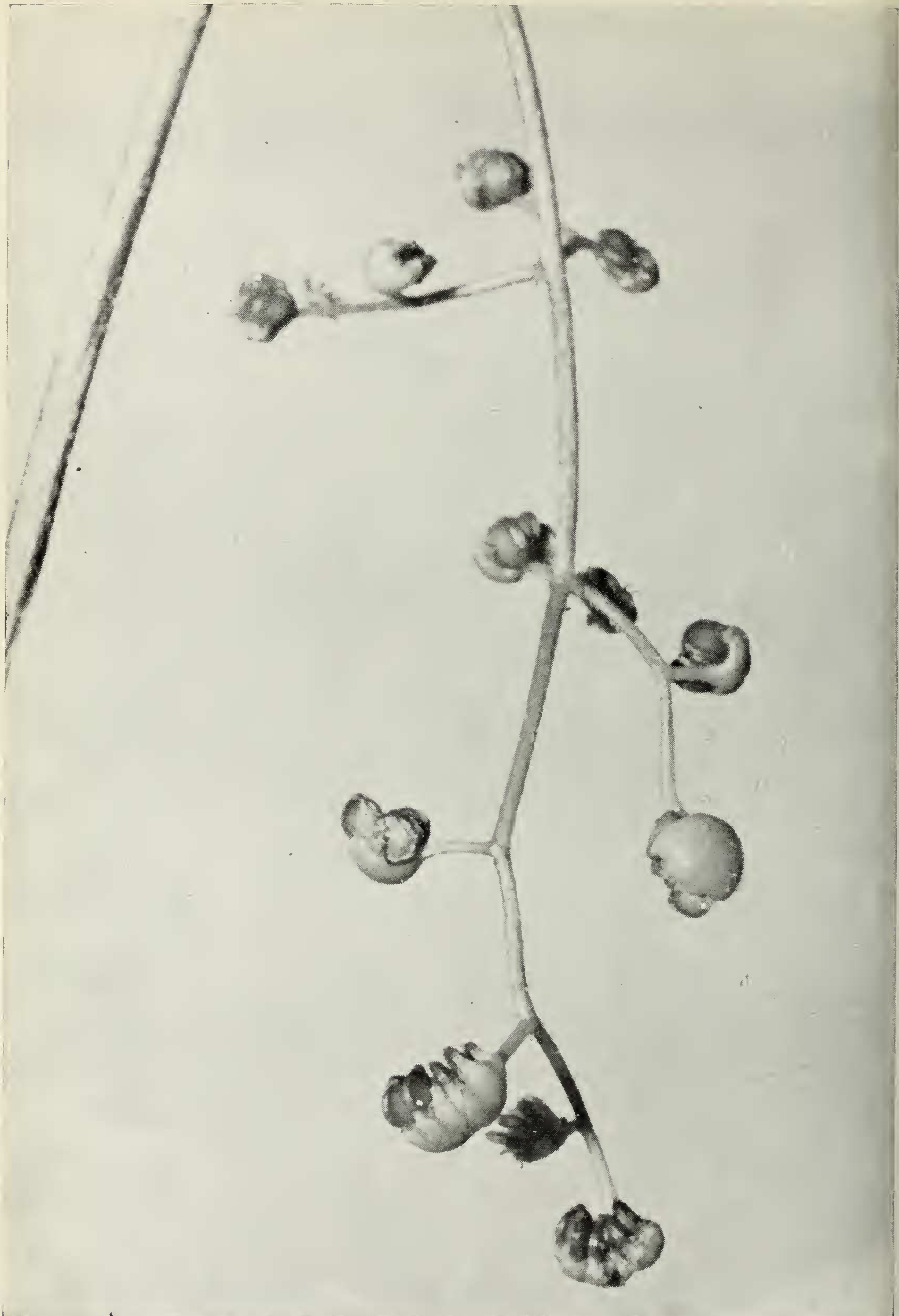


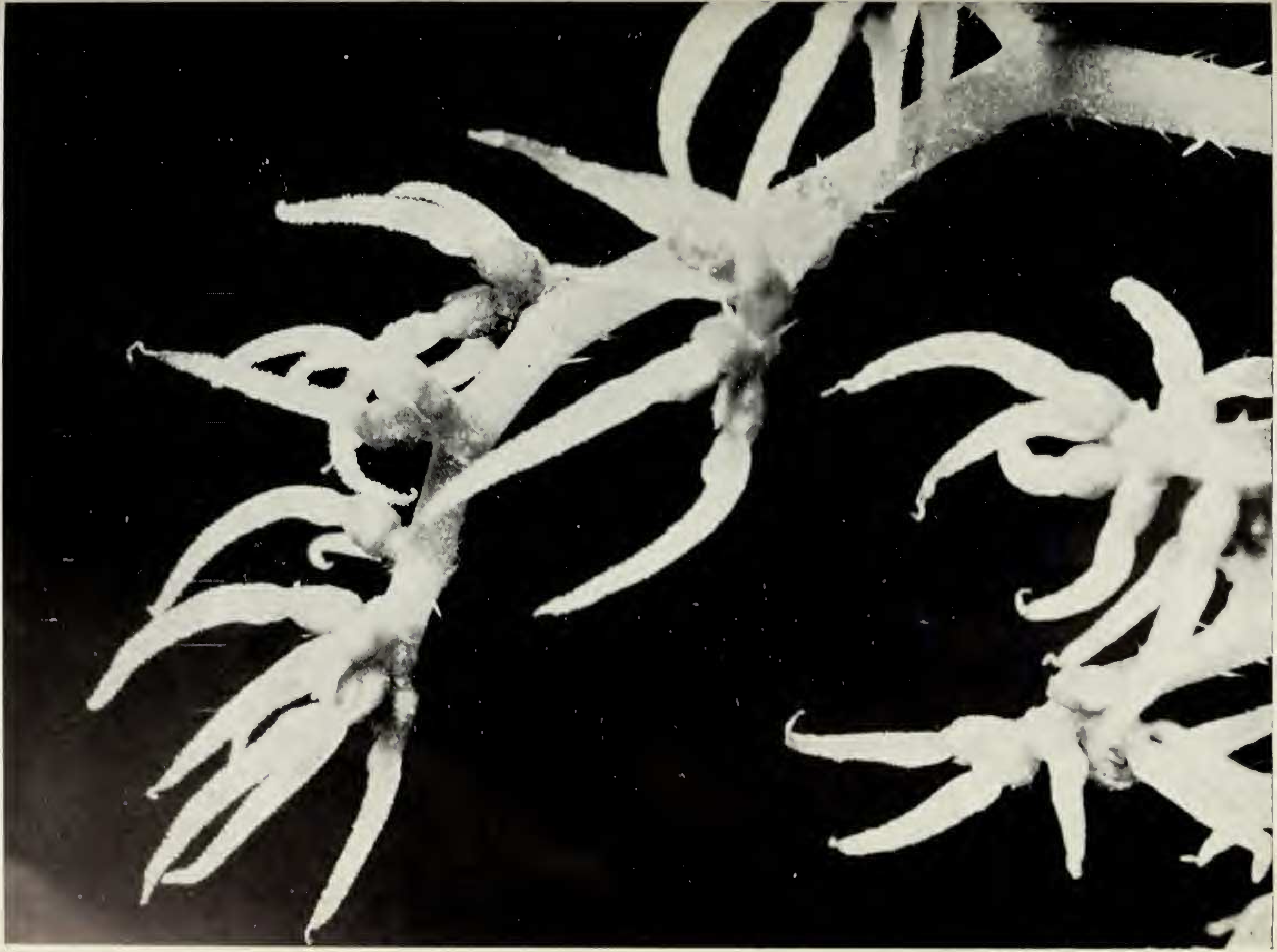
(*Photo by F. G. H. Allen.*)

Laportea stimulans. 'Jelatang'. Fruits, slightly larger than life size.



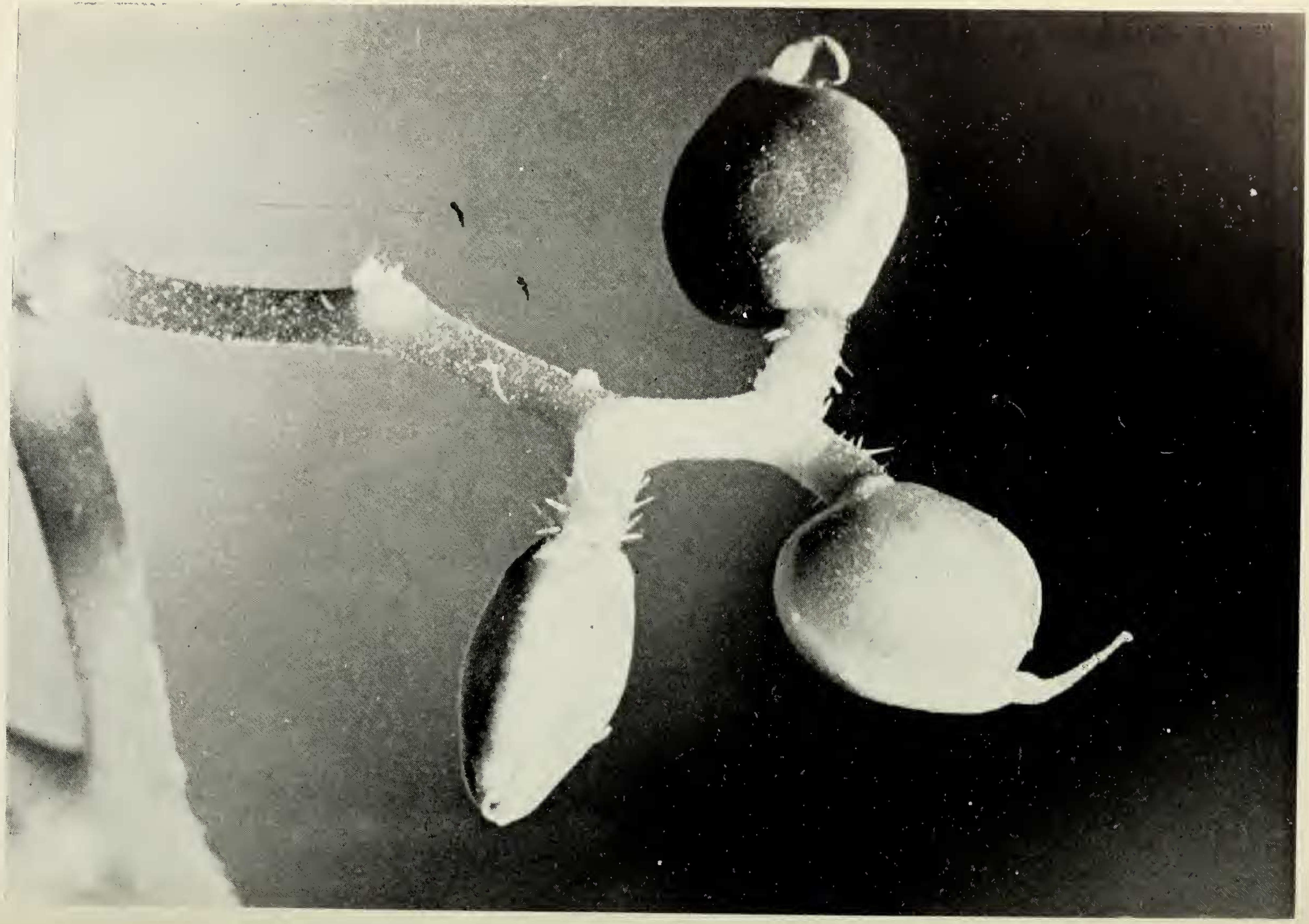
(*Photo by F. G. H. Allen.*)

Laportea stimulans, 'Jelatang'. Female flowers, C. × 3.



(*Photo by F. G. H. Allen.*)

Laportea pustulans, 'Pulutus'. Flowers, greatly enlarged.



(Photo by B. E. Allen.)

Laportea pustulans, 'Pulutus'. Immature fruits, showing the pale ridge along the edge, and the stinging hairs.